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THE FOUNDATIONS OF BELIEF AMONG PRIMITIVE MEN

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IN seeking out the origin of error and truth, fact and fancy in the history of the evolution of medicine, it soon became apparent to me that considerable thought must be devoted to a consideration of the foundations of human belief in general. It is quite impossible to follow back along the thread of progress in science with any assurance of not having lost it, unless one inquires very seriously why primitive man, or semi-civilized man, or any other man, thinks as he does. A novice in practical ethnology can view such an obstruction to the study of the origin of medicine only with dismay. He is forced from the vantage ground of original observation by the multiplicity of demands upon his capacity and his energy. He is obliged to study not only ancient primitive man in ancient texts and monuments, but he finds no opportunity, or but little, for the corrective study of prehistoric man in his own observations on modern primitive man. He has to turn to travellers' tales and accept the second-hand study of others whose opportunities are greater and whose territory is more circumscribed. It is then with all humility that I expose here a consideration of a few of the impressions which I have derived from the more original works or others. If I am forced thus to disclaim any pretence of the study of primitive man at first hand, I am also compelled to acknowledge the fragmentary and incomplete nature of the discussion I am offering. The analysis of the vast congeries of motives of human belief which are exhibited gradually to the student of human nature far surpasses the possibilities of an essay much more pretentious than this. I can only put forth those impressions I have received in sifting a certain amount of the evidence I have studied in the pursuit of some comprehension of the ideas of primitive man as to the art of medicine entirely or largely undifferentiated from other activities of a budding mentality. The investigator in the field must begin by choosing some phenomena as this which is at least partly comprehensible to him, and try to ascertain how the primitive mind arrived at such a state. The first requisite in a

labor of this kind is to divest oneself as completely as possible of any thought as to the correctness or the error of the fact or theory which forms the substance of the conception. Unless one realizes that this is the product of a human mind, or of a number of them, worthy of careful attention, whatever may be the particular brand of error in which the student himself is immersed; unless one realizes that in a generation or two some future critic will have the same tendency to smile or yawn over the pet beliefs that haunt contemporary thought, little advance in getting at the back of the mind of primeval man will be achieved. The next to consider is the environment in which primitive or ancient man himself was immersed. Then the history of his racial and social evolution. Finally, what is usually less important, racial idiosyncrasy of cerebral function. This is less important because usually as between the races of men the variations in the quantity and quality of cerebral function are slight apart from the effect of environment in its broad sense, inclusive of historical or evolutionary experience. For the vast majority of the races of men, cerebral capacity in its physical or anatomical sense and functional or qualitative sense is the same, while their sensations and emotions are but the reflex responses of their own forgotten acts and thoughts which in time past have been registered by the brain.[1] They have been registered there and they find expression with primitive man in a different way than with us.

Primitive man's participation in the processes of nature has caused him to assimilate into his subconscious mental processes certain moral impulses, if we may so call them, which when revealed to him in dreams influence him in a way inexplicable to the civilized man whose subconscious warehouse has been stored with a different sort of impulse and who does not heed dreams as realities, which he must take into account in shaping his actions. It is not only then that he is guided by dreams, which may indeed be summoned up from the subconscious realm by overeating, but back of the dreams lie the impressions made upon him by happenings in the forest and on the plain, by flood, fire, famine, by the scorching heat and the numbing ice. In this sense then he is indeed the child of nature, though often it is through his theories and his dreams he participates in it. Then back of his impressions are the explanations of why they have taken the form they have. It is a vicious circle. His fears, arising from his pantheistic misinterpretation of nature, guide his theories and his dreams or his theories through the

[1] Leonard, A. G., "The Lower Niger and its Tribes," London, 1906.

medium of his fears guide his actions. Primitive man, a participant with nature in her pitiless moods, "bare of tooth and red of claw," knows naught of humanitarianism, but this altruistic sentiment is merely with us an expression of social evolution which he lacks. To a certain extent this lack of social evolution may be said to be back of narrow-mindedness in a civilization just as a lack of individual evolution is back of personal narrow-mindedness. So in olden Greece there existed perhaps a pardonable arrogance which led them to draw a sharp line between the Hellenic race and barbarians. Modern science and to a large extent modern usage has obliterated this line of cleavage and we discuss the "civilization" of the Aztec, the Babylonian, the Chinese, the Bantu and the Iroquois from more or less the same point of view we do that of the Frenchmen, the Saxon or the Teuton, and, if we are to make progress in the analysis of the evolution of thought, we must not pin ourselves to standards of culture or morals or indeed of knowledge. We must treat with entire objectivity, so far as we can, the cult of the savage. It is not difficult to take an account of his material civilization, but as Lord Avebury[2] says:

> Travellers naturally find it far easier to describe the houses, boats, food, dress, weapons and implements of savages, than to understand their thoughts and feelings. The whole mental condition of a savage is so different from ours, that it is often very difficult to follow what is passing in his mind, or to understand the motives by which he is influenced. Many things appear natural and almost self-evident to him, which produce a very different impression on us. "What!" said a negro to Burton, "Am I to starve, while my sister has children whom she can sell?" When the natives of the Lower Murray first saw pack oxen, some of them were frightened and took them for demons "with spears on their heads," while others thought they were the wives of the settlers, because they carried the baggage.

At each step along the road we have traveled since the Stone Age, our environment has changed and, as the path stretches behind us, we lose sight of the impressions which the road side has furnished. It is not alone a matter of physical change in the environment, but it is also a change in the mental environment. By the side of material evolution marches a social evolution and a mental evolution. It is the latter which forms the environment in the brain of man for the idea entertained by thought or for the fact observed in the material and social evolution around. So when we think of the processes in the brain of primitive man we must, as Frazer[3] says,

[2] Avebury, Lord (Sir John Lubbock), "The Origin of Civilization and the Primitive Condition of Man," London, 1889.

[3] Frazer, J. G., "The Dying God," London, 1912.

divest ourselves of our modern conceptions of the immensity of the universe and of the pettiness and insignificance of man's place in it. We must imagine the infinitude of space shrunk to a few miles, the infinitude of time contracted to a few generations. To the savage the mountains that bound the visible horizon, or the sea that stretches away to meet it, is the world's end. Beyond these narrow limits his feet have never strayed, and even his imagination fails to conceive what lies across the waste of waters or the far blue hills. Of the future he hardly thinks, and of the past he knows only what has been handed down to him by word of mouth from his savage forefathers. To suppose that a world thus circumscribed in space and time was created by the efforts or the fiat of a being like himself imposes no great strain on his credulity; and he may without much difficulty imagine that he himself can annually repeat the work of creation by his charms and incantations.

Fundamentally the human mind, so far as etiology is concerned, is like nature; it abhors a vacuum, and it is human by virtue of this very quality which is said to separate man from the brutes. Man only with reluctance and after long wrestling with the problems before him comes to the agnostic state of mind. He must have a reason for things. "*Felix qui potuit rerum cognoscere causas.*" Savage man and modern man in the face of mystery delude themselves into thinking they have found a reason, by filling what would otherwise be a sort of vacuum, with an incomprehensible agent, vitalistic for modern science—a spirit for the savage. The very fact that he has the mental energy to fill the gap in his knowledge with *any* concept asserts his humanity in differentiation from the brute. False reasoning is vastly better than none, and agnosticism has its dangers as well as credulity. It was vastly better that he believe an anthropomorphic spirit dwells in every object, material and animate, than to give no thought at all to the "causes of things." Some savages have been observed at least partly in this state. When the savage lost his idea of an indwelling spirit he lost the idea of the process of continuity of phenomena. He became an agnostic—did not know and finally did not care. Of course this is only approximately true, for the tendency always is to fill the vacancy, but the "ignorant white man," devoid of pantheistic concepts, takes his faith on authority which is worse mentally than the heathen's fetish or his essential agnosticism in its lowest expression. We are not concerned with this phase of primitive mentality; it is one of the dead twigs on the stem of early mental evolution which has fallen out of the line of the evolution of thought. We should be quite ready to believe that "before the dawn of human reason evolution was a gradual unfolding of reality to the sentient consciousness,"[4] were it not

[4] Ward, Wilfred, *Edinburgh Review*, January, 1916, p. 73.

for the implication that humanity was born before human reason. One is less inclined to demur at the view that there were products of human mental activity which can not be dignified by the label of scientific, but we can hardly look upon this as a pre-evolutionary period. Despite the apparent chaos, we know well things then were taking shape—even though beyond our ken. Without allowing myself to be betrayed further into mere terminology, it is evident that this unfolding of reality to the sentient consciousness is the product of the environment in which of course other factors are integrated. One of the results of this has been the myth-making deductions which have, it seems to me, frequently led students of the evolution of human thought astray. It doubtless belongs to its inceptive stages.[5] The child shows obvious traces of it, but that very mental activity which in its exaggerated form in children leads them to lying, or more charitably to romancing, it seems to me is not a safe guide for the pre-historian in tracing out the processes of primitive thought and still less reliable in reading into the records of prehistoric man what was little more than the result of the suffusion of the gray matter of the brain with an increasing blood supply. Surrounding influences, so different usually from our own, at least the extrinsic ones, present a whole mass of inherent ideas to the individual consciousness of savages, and these find expression to some extent in mythological traditions which may indirectly furnish us with clues to matters otherwise dark to us, but when these are the only clues, it is safer to limit our conclusions simply to a belief in the marked cerebral activity of primitive man. When, however, we have concomitant hints of the direction such manifestations of primitive mentality take, we may venture further. Changes in the weather are preceded by certain appearances of the clouds and of the leaves of the trees and the grass of the plains, by certain actions of animals and birds. These are still obvious to the close observer of nature who lives in constant communion with her. Few educated people to-day do this. Even if they do, they are warped by their book knowledge and their theories and prejudices to such an extent that not only are they unable fully to profit by the observation of such phenomena, but they are unduly skeptical of what these phenomena meant to savage man.

In studying the old civilizations, we are reminded that the Mesopotamians, and those dwelling on the Nile, were able to prognosticate many things which escape us, but they resemble

[5] Wundt, Wilhelm, "Outlines of Psychology," tr. by C. H. Judd, third revised English edition, Leipzig, 1907.

us in the tendency to an optimism and a credulity which led them into theories entirely false. Because the swallows fly low before a storm and other birds have a peculiar note, because the migration of certain flocks presage an approaching change in the season, because a moderate number of future things are betrayed by the behavior of animate and inanimate nature they believed, or their priests and rulers feigned for their own necessities and purposes to believe, that they could by observing such behavior foresee fortune or misfortune in social and political affairs; their physicians believed or feigned to believe for their own necessities and purposes in theories of causation and methods of cure lacking logical foundation. It was not a lack of their power to observe, it was the lack of the critical faculty in their contemporaries or the impossibility of their exercising it and not their lack of objective knowledge which led them or tempted them astray. Here we are on common ground. Our own situation in the last century or two curiously resembles that of primitive man. The opportunities for observation, the dragging to light of new facts, has in a measure swamped the processes of logical thought. Analysis of the meaning of things in scientific records has become puerile, and the memory of the facts themselves in this futility of attempt at utilization slips rapidly away from the consciousness of civilized men. If the variation in the aspect of an animal's entrails may not, the conjunction of certain stars in the sky, the phases of the moon, *may,* at least account for certain climatological phenomena, and, perhaps oftener than in our scorn we admit, for certain etiological and pathological phenomena of disease; they may have directly or indirectly much to do in altering the pharmaceutical behavior and the therapeutic effects of the leaves and juices of plants. They may have some sort of relation to the recurrence of the rut in animals, and there may be some coincidence with the mysterious phenomena of menstruation in the human female. If that is so, modern science has not discovered it or has arrived at only a vague adumbration of the connection. They do not impress the modern man, because they do not run in certain channels which his mental faculties are now accustomed blindly to follow without the exercise of reason. When, however, certain modes of *modern* thought are followed in discourses on etiology rational exercise of the mind promptly sinks out of sight. Primitive man, no more than the most recent of modern men, tends to lend to these vague and usually fallacious hints of natural phenomena a significance often entirely illogical and absolutely devoid of rational analysis. He was no more often given to it, perhaps, but he certainly no less fre-

quently allowed his reasoning powers to sink into abeyance, and by social inheritance he had much less material on which securely to exercise them.

We must reluctantly admit this, and to admit it is to deplore it, but to a degree we are also in a position occasionally to admit and to rejoice in the faculty of imagination vouchsafed to man as one of the gifts that differentiate him from the brutes. Inappropriately used and uncontrolled as it often is, the boundless things that appeal to the imagination and the priceless possession of it, and not alone the powers of observation and memory we share with the brutes, are the incentives and indeed the means of human progress. There is something in the appeal of the prophets to higher powers which continues to move the soul of man long after he has ceased to believe in their vaticinations. The forecasts of Isaiah and the Songs of Solomon strike a chord in the emotions of men like Byron's "Apostrophe to the Ocean" and the poems of Ossian. The more direct the contact with these primeval feelings and these forces of nature, the more acutely are the minds of men moved and the more completely are their actions controlled, which is the practical thing for ruler and priest, for prophet and physician. The Indian medicine man invoking the mighty waters to help him in his ministrations appeals to the emotional side of man and the value of it as an adjuvant, or of like things as the very sheet anchor of therapy, can not be overestimated. Yet wherever one studies these incantations, however faithfully they may be transcribed, there is always to us something incoherent about the flow of ideas. Those of primitive men and quite as much those of another civilization jar and weary us. This is not altogether due to our lack of comprehension and sympathy with ideas and an age which has long since passed away and is all but lost to us. We know that our own phylacteries do not bear analysis and we may well believe that such things may have seemed quite as incoherent in the time of Pharaoh as the outbursts of modern emotions when questioned do in our own time. We scoff at the Babylonian prayers. The scoffers at our own have quoted them in derision. Our own are music to the souls of some of us, unbelievers that we are, while around the pillars of our thought they are so entwined for others; they are so incorporated with the fiber of the feelings that most of us fail to see how absurd and inane and meaningless they are in the cold light of analysis. If that is so to-day, why should we understand such things echoing from the banks of the Nile across 4,000 years? But if for a single moment we forget their power of appeal to the emotions of the dwellers along its banks

we shall surely fail to understand the course of the evolution not of history alone, but of medical thought. They are not only a valuable asset in therapy, but they profoundly influenced theory.

Man has never ceased to profit by such musings, by such exercises of the imagination. He gathers his herbs when the glint of the new moon is on them—perhaps at one of the new moons their medicinal properties are more available, but they more often remind him of something associated with the malady as he understands it. His belief and his faith inspires the patient subjectively in as helpful a way as objectively the juice of the leaf has accomplished. He summons the spirit of the rushing waters and he treasures the shining stones they have polished. They fit in with some notion which flits through or finds permanent lodgment in his brain. The association of these ideas we can seldom hope to trace, but we must neither fail to appreciate their power, nor forget the germ of truth which lies concealed, evidenced often by objective results which we are able to grasp. Fetichism and animism and many another manifestation abhorrent to our rational precepts have arisen from such imaginative musings of the physician-priest. He has transmitted them to us in the various forms of superstitions still or lately with us; ghosts, enchantments, charms are still with us or a tradition of them is familiar to us yet. These are but remnants of the earliest forms of beliefs in spirits and demons which took anthropomorphic forms in the deductions of the science of earlier times.

Not only did demons in human shape persist until long after our own traditions participated in the current of human thought, but the theriomorphic concepts of the soul have left traces with us. They go back to primitive man. I have attempted to show elsewhere how early and how widespread in its influence on medical theories was the idea of the soul. The invisible wraith or breath in its flight from the body, like smoke, their imagination pictured so vividly that in the mind's eye they caught glimpses of it as it flew upward. In the stories that have come to us from the primitive Australians and Melanesians, we find them declaring they hear the wings of the spirit of man as it flies aloft on some errand of the tribal wizard. The whir of the pinions announces its return, and the people declared that he whose soul thus flew aloft was found to have sprouted feathers on his body.[6] Now it is not difficult to see the connection of ideas, nor the reason why the affiliation persisted

[6] Smyth, R. B., "The Aborigines of Victoria," Melbourne, 1878, 2 vols.

through the queer feathered bewinged bird bodies perched as the Ba souls on Egyptian tombs, through the foul harpies of Greek mythology, through the lofty conceptions of the soul in Plato's dialogues, to the winged angels of our own Christian cult. The thought started with the fugacity, the evanescent nature of the human soul, it carried well the materialistic burden of Egyptian conceptions, it found ready acceptance in the aspirations of the human soul as Socrates unfolded them to Phædrus under the murmuring leaves of the plane tree on the banks of the Ilissus. The soaring aloft of man's spirit to mansions in the sky in the religion of Christ adapted the primitive, Egypto-Greek mechanism again to an aerial or etherial medium.

It is rarely the case, but it sometimes happens, that we can thus follow the course of human thought from its primitive source in the budding intellect of man through the vicissitudes and cataclysms of ten thousand years to our own day. It is a striking exemplification of the unchanging psychical and mental nature of man that a spiritual environment should have preserved and developed a materialistic soaring on the wing, which the wondering savage daily saw in the flight of birds from the earth to the sky over his head, into the stimulating spiritual thought of the soul of man aspiring to things not of this earth. Elsewhere also I have sought further exemplification of the pneuma, the counterpart or alter ego of the soul, springing from the primitive observation of the advent of death coincident with the cessation of respiration and the stoppage of the breath developing into a theory which created an imaginative anatomy for the Egyptians and a suggestive basis for the etiological and pathological conceptions of Greek medicine. I have tried also to show how the fatal gush of blood from foe or friend, or from the quarry in the chase, created the art of hepatoscopy with the Babylonians and their Etrusco-Roman heirs, and ultimately grew into the Galenic humoral theory. It is not necessary here to repeat the argument which brings out the physiological environment which made possible the persistence of these primitive ideas in regard to the "breath of life" and the blood as "the life," to an efflorescence within at least hailing distance of our own times. Neo-humoral theories are still reminiscent of the blood rites of brotherhood of the African and Australian wild men, which in turn were based on the phenomenon of fatal hemorrhage in man and beast.

I may now turn from these themes, more or less familiar to us all, at least in some of their aspects, illustrative of the en-

[8] *L. c.*

vironment which originated basic conceptions and favored their persistence from the infancy of mankind to an advanced age. It is not difficult to acquiesce in the view that for the few threads we hold in our hands to-day, a million strands have been broken and lost to us in this vast interval of time.

With the racial idiosyncrasies of other races we need have little concern, but it so happens that in the story of the consecutive development of thought the negro and the Greek play for us important rôles. It may be that other races, when we know more of the ramifications of thought and theory which have entered the fabric of our own civilization from them, may exhibit idiosyncrasies as striking as those which greater and more careful study of the black African and the white Aryan Greek have revealed to the student of their ethnography. It has been much the fashion among ethnologists to insist that the mental capacity does not greatly vary, that the cerebral hemispheres occupied as much cranial space ten thousand years ago as they do now, some insist even more. I can not presume to contradict this view of those much more competent than I in the matter. I may, however, seek to circumnavigate a rock in my course, which I can not help regarding with some misgivings and with some inward revolt, by suggesting there are brains and brains, in which doubtless I should receive aid from those more knowing, and by adding that there are also capacities and capacities. I may perhaps leave the question of functional efficiency in the anatomical organization of the cerebral tissue, for that is still and probably will always remain a refuge for those when hard beset who are reluctant to deny the evolution of mental capacity to a higher plane than it occupied in the time of the cavemen. Lord Avebury was of the opinion that, given the same environment, the human mind works in like fashion everywhere, and its results are all but identical.

The negro or negroid race, a very vague term I admit, is one that interests us in this connection not only as a theme to illustrate the basis of belief, but because it is directly in line with our ancestral inheritance of culture and civilization, for the primitive Egyptian and his civilization were not simply African, but negroid, and we through the Greeks are the heirs of its culture. Now, in this country, the contest as to racial cerebral efficiency rages around the negro. Ethnologists for the most part declare that his backwardness in this country is not due to racial inferiority, but to social handicap. The arguments against this view, with which I confess I sympathize, are familiar to most readers, and I do not propose to parade them

here. I prefer to take the view of Miss Kingsley and many others, who have studied him in Africa and who declare he is vastly more spiritually minded than the modern predominant type of white man; but we also have many spiritually minded individuals among us. Spiritually minded people, white or black, set down in a population of an essentially materialistic turn of mind need guardians from the cradle to the grave; so with the negro; with his congeners in Africa he may indeed, as have the Hindus, evolved civilizations and built empires, but the pantheism bred in him by heredity and strengthened by environment, perhaps by selection, has placed him on a poor footing with the materialistic white man in this country. The white man invites him to take a seat at a game evolved by and for the white man. Why indeed should he not fail? It is not his game. Now I do not wish to raise the question whether the white man's game is a better game than the black man's game nor the question of the inferiority or superiority of one race over another, but while I have had little or no experience with other races, I think the black race shows radical mental differences when compared with the white race, and I can not help sympathizing with the view that there is something, not radically wrong, but radically different also in the thinking of the educated white man and of primitive man, though there can be no question that the difference has been, perhaps still is, grossly exaggerated.

In torturing ourselves to be kind and patronizing to the men of other races, in wishing to make them feel complimented by assuring them they are just like us, we assume the attitude of the most egregious and narrow-minded vanity. We tacitly assert that the captain of industry who knows how to cipher and calculate and by means thereof to bully and dominate his fellow man is the highest type of human nature conceivable. We ignore Swedenborg and the prophets, in which class the negro belongs. At different historical epochs the ideal type, as put in the foremost ranks for veneration by the white race—the warrior, the ascetic, the materialist, the idealist, the altruist—has come and gone. Representatives of each class at every epoch are always readily found and have enjoyed their heyday of popularity and have given place to a new admiration. Men differ and so does the mean type of the race from age to age, according to its stage of progress, but to say which is inferior, which is superior, smacks of intolerance and involuntarily we smell the martyr's burning fagots, we hear the chains of slaves and the creak of prison doors, we see the endless line of the

crucified who have not fitted into the general scheme of things. The negro's mind is at antipodes with the Greek mind. It does not analyze, but it believes, with a faith which is entire and absolute, that crude impression which first reaches it through the senses. The negro is emotional not only in sensual fashion, but in a spiritual fashion, and as he once was portrayed on monuments now 6,000 years old so he remains to-day in Africa or in America, but who is there to deny that much which is best in our own civilization had its origin in some man's supreme capacity for spiritual emotion, which the negro has in such a marked degree?

Whether we think it of "low" or "high" mentality, the spiritually minded when pantheism was the universal theory of mankind, were its rulers, and they shaped the infancy of primitive thought. We can, therefore, not be indifferent to Aveburys opinion that "the human mind works everywhere in like fashion"—to deny it is a very different thing from denying that one mind is more practically efficient in our own view as to what is worth while. We are far from being unbiased judges in deciding what is a superior and what an inferior mind. Moreover, the whole form of the discussion is grossly unscientific, because unconsciously we discuss it from a standpoint that is subjective, not objective.

In introducing the Greeks I do not do so to adduce another and a contrasting example of racial idiosyncrasy, though it is a striking one. I do it chiefly to force home the previous argument. All students of the dawn of history—all those who have pried into the practical life and the esoteric life of the ancient oriental civilizations so far as their details before the Trojan war have been revealed to us, feel that with the advent of the northern races around the Ægean Sea something almost cataclysmic happened in the smooth course of the progress of thought and emotional life, in philosophy and art and religion. The strain of adjusting oneself to these things, among the Egyptians and Assyrians is relieved as we look upon the art of Crete and read the dialogues of Plato. The cannibalism of primitive man revolts us scarcely as much as the pæderasty of the Greeks, but ancient oriental thought and emotion estrange us still more. We turn to the northern invader, we whose blood flows from his ancestors in western Europe, and we realize that "East is East and West is West." Why indeed then should we not think that the negro, whose spirit lay so heavy on the brown race that dwelt along the Nile and around the Mediterranean, is an inferior race? We understand the Greek, we are

of his blood, his way of thinking, his religion, so far as he had any. His analysis and criticism, the spirit of his music, his plastic and dramatic art, flowed to us around the northern ends of the Alps before we found him again in the Mediterranean. We look down the paths of the black race and they are dark to us. It seems to me then this aspect of the question, imperfectly exposed as it is here, is an added reason for us to realize that the basis of primitive belief must have been affected not alone by environment, but by the fact that all men do *not* think alike in it either individually or racially.

The psychology of the crowd manifested by beliefs due to no individual process of reasoning, but to contagion, need find no place for discussion here, since they have less to do with the basis of belief than with its propagation. We may more profitably turn to one less discussed in current literature. In a recent book[7] on the ethnology of Africa there is a long and careful description of the art of divination by means of casting bones, the astragalus bones of various animals, domestic and wild. It is a very complex and absorbing occupation—not a child's play at all—but it requires considerable mental concentration, not a common thing apparently among primitive men. The rules are well known to all the tribe, but the mental effort to interpret, *i. e.*, to drag present, past and especially future, events into harmony with its rules and their results, is very great and necessarily at once trains the intellect, and, through the skill acquired, excites the admiration, and, through the concomitant awe and fear of approaching disaster or joy in the anticipation of agreeable experiences to come, makes the expounder and practitioner distinguished. Attention is drawn to this matter by another observer[8] of primitive man in Africa, who declares that the wizards are dupes of their own mental abstractions, their thoughts being based on natural impulses and emotions. The absorption of the attention and the concentration of thought in themselves are entirely sufficient to enlist the faith of the performer in his own assertions and prophecies; he believes in it, just as the doctor or ecclesiastic or the scientist believes in what he is working at, not through its intrinsic value as a method of arriving at the truth, but because it absorbs his attention and diverts it from a study of the environment. It is a hypnosis with the Bantu conjurer in the same sense that the doctor's art, the theologian's belief, the scientist's experiments, are to them.

[7] Junod, Henri A., "The Life of a South African Tribe," London, 1912–13, 2 vols.

[8] Leonard, A. G., "The Lower Niger and its Tribes," London, 1906.

It is Nature's revenge on man, who attempts by earnest fierce attention and energy to wring her secrets from her. She hypnotizes the assailant, or the suppliant, just as the snake charms the bird, just as the hypnotist influences the neurotic and the hysterical. It is the intensity of the preoccupation of the mind of the saint which throws him into an ecstasy or a catalepsy, the very antithesis of the detachment which the knowing seeker of the truth cultivates. He who allows himself to be mastered by his subject may indeed acquire honor and riches, but the thing he seeks eludes his grasp. Usually he passes into the twilight of mental inertia from the soothing effect of the honors and riches upon his sense of critical discrimination. When he becomes incapable of laughing at himself, he is in danger of damnation, and of course excessively disagreeable.

Contagion in the crowd and intensification of application in the cloister are somewhat aside from the basis of primitive belief, but they lie close beside it. They do not necessarily guide it into false paths, but on whatever highroad faith, true or false, is found they accentuate the pace along it. Errors of logic, on the other hand, also lying close to the foundations of belief, alter the direction of faith. Though modern errors of logic are scarcely less flagitious than the ancient, I should be presumptuous indeed if I attempted to point them out.

Hume said there is a universal tendency in mankind to conceive all beings like themselves and to transfer to every object those qualities of which they are intimately conscious. Goethe puts it in the mouth of the supernatural spirit, to whom Faust wished to liken himself, thus:

> Du gleichst dem Geist
> Den du begreifst
> Nicht mir.

This anthropomorphism was as all-prevading in primitive medicine as it was in primitive religion. It is not for us here to inquire whether modern religion has freed itself from this motive or not. Suffice it to say if this was not one of the fundamental motives on which rested the belief of primitive man in magical medicine, it was a fertile source of error in its inception and long continued one of the glaring vices that perverted the logic of antiquity, for anthropomorphism is but one aspect of parallelism. The roots of the Babylonian astral system[9] rest on his view. The continuous sameness of the repe-

[9] Oefele, Felix von, "Janus," XII., 1907, p. 196.

titons of the courses of the heavenly bodies seemed to base its only explanation in a law of parallelism which rules nature and history alike. It was and is a blindness to the true nature of sequences, an ignorance of the laws of chance and coincidence. It is long since this fallacy of logic first dawned on the human intellect, but it is still often persistently oblivious of the falseness of the deduction "post hoc ergo propter hoc." In Babylon the observations of parallels was the chief concern. A fund of wisdom was built up on the basis of the painstaking collection and observation of facts and their sequences. The folly of disregarding the terms of logic was as little heeded then as now. The political, religious, historical events in sequence to certain stellar and cosmic happenings became a matter of voluminous record and unquestioned guidance. Vegetation dying at the conjunction of certain heavenly bodies and springing to life again when other conjunctions supervened through induction of parallels gave rise by deduction to religious and physiological conceptions of resurrection and of life after death, which still actively persist in their theocratic form at least. We see the trail of this sort of reasoning everywhere. It is doubtless very much more the process of the primitive mind than of the modern, but there it is more insistent on our attention, because we examine the mentality of remote generations much more critically and much less sympathetically than our own. I have only alluded to the astrology of Babylon, but the records of observations made on modern primitive men are pervaded with it.

If we can boast that we have almost banished from our scientific processes of reasoning the vices of anthropomorphism and parallelism in most of its other forms, this is not the case with another vice of logic, which I venture to say is quite as prominent in modern reasoning as in that of the cave man. Castelnuova is quoted[10] as saying:

> To an eye more piercing than our own the universe would seem apparently more complex than we imagine it; but fortune has willed that the imperfect senses should fail to reveal to the first observers of the world the great number of anomalies which were apparent later and has constructed, so to say, foregrounds of the picture, each succeeding the other. The building up of present-day sciences would have been vastly more slow if this perspective had failed and the successive observers had attributed the same value to near and far objects.

Now this may be so. The man of the stone age, had he realized the complexity of etiology, might well have given up in despair the project of finding the cause for anything. If it seems never

[10] "Scientia," 1, v, 1916, p. 341.

to have dawned on him that a phenomenon could have more than one cause, it was due to that kind of pantheism which he held to be the state of nature which obeys no law. He looked upon life not as a process, but as a fiat. "Let there be light; and there was light," and that was all there was about it.

Now of course this simplicity of conception is no longer the characteristic of trained and exceptional minds. Lord Kelvin when he wished to explain to himself a complicated question in physics depended upon the imagination of, or on actual construction of, a mechanical model to represent all the factors which influenced the result. A series of pulleys and levers, sometimes to a very great number, each represented to his master mind an object on which to attach a weight or exert a traction which by means of the connecting thread of causation, was acted on by other factors and all combined to give at the end of the series a totality which represented the expected answer.

> By the joint action of a certain temperature, a certain amount of moisture, and a certain miasm, upon an individual of a particular diathesis, who happens to be in a particular state there may be produced the immense complication of effects constituting a disease.[11]

The great philosopher who wrote this sixty-odd years ago may have had his counterpart 6,000 years ago in Mesopotamia, but the vast majority of men then and the vast majority of men now have their minds exclusively fixed on that one word "miasm"—"devils" says the one, "plasmodium or bacillus" says the other. I am not introducing this here because it only disfigured the reasoning that clustered around the basis of belief in the stone age, but because it has failed to acquire that prominence in the discussion of primitive methods of thought which can only be explained by modern as well as by ancient oblivion to its pernicious influence.

If there is such a thing as an innate tendency of the human mind it is that instinct for the conservation of energy which finds its expression in intellectual processes in the endeavor to simplify the contemplation of causality. The common run of men are incapable or stubbornly indisposed to visualize but one of Lord Kelvin's pulleys. Spencer's modifying causes introduce a complexity which pains them and angers them.

[11] Spencer, Herbert, "The Principles of Psychology," New York and London, 1910, 2 vols.